

CLAIMS

WHAT IS CLAIMED:

1. A communications system, comprising:
a physical layer hardware unit adapted to receive user data over a first
communications channel and control codes over a second communications
channel, the physical layer hardware unit being further adapted to transmit an
upstream data signal over the first communications channel based on
transmission assignments defined by the control codes; and
a processing unit adapted to execute a software driver for interfacing with the physical
layer hardware unit, the software driver including program instructions for
implementing a protocol layer to decrypt the user data and provide upstream
data to the physical layer hardware unit for generation of the upstream data
signal.
2. The system of claim 1, wherein the control codes include at least one of a
power level assignment, a frequency assignment, and a time slot assignment.
3. The system of claim 1, wherein the physical layer hardware unit includes:
an analog front end adapted to sample a received signal and generate received signal
samples;
a downconverter adapted to process the received signal samples to generate a
carrierless waveform including the user data based on receive assignments
defined by the control codes;
a demodulator adapted to demodulate the received signal samples to generate the
control codes.

The particular embodiments disclosed above are illustrative only, as the invention may be modified and practiced in different but equivalent manners apparent to those skilled in the art having the benefit of the teachings herein. Furthermore, no limitations are intended to the details of construction or design herein shown, other than as described in the claims

5 below. It is therefore evident that the particular embodiments disclosed above may be altered or modified and all such variations are considered within the scope and spirit of the invention. Accordingly, the protection sought herein is as set forth in the claims below.

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4. The system of claim 3, wherein the physical layer hardware unit includes control logic adapted to receive the control codes and configure the downconverter based on the control codes.

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5. The system of claim 4, wherein the control codes include at least one of a power level assignment, a frequency assignment, and a time slot assignment.

6. The system of claim 3, wherein the physical layer hardware unit includes:
an upconverter adapted to receive the upstream data and generate an upstream digital
signal, wherein the analog front end unit is further adapted to receive the
upstream digital signal and generate the upstream data signal; and
control logic adapted to receive the control codes and configure the upconverter based
on the transmission assignments defined by the control codes.

7. The system of claim 1, wherein the processing unit comprises a computer.

8. The system of claim 7, wherein the computer includes:
a processor complex adapted to execute the program instructions in the software
driver;
a bus coupled to the processor complex; and
an expansion card coupled to the bus, the expansion card including the physical layer
hardware.

11. A modem, comprising a physical layer hardware unit adapted to receive user data over a first communications channel and control codes over a second communications channel, the physical layer hardware unit being further adapted to transmit an upstream data signal over the first communications channel based on transmission assignments defined by the control codes.

12. The modem of claim 11, wherein the control codes include at least one of a power level assignment, a frequency assignment, and a time slot assignment.

13. The modem of claim 11, wherein the physical layer hardware unit includes:
an analog front end adapted to sample a received signal and generate received signal samples;
a downconverter adapted to process the received signal samples to generate a carrierless waveform including the user data based on receive assignments defined by the control codes;
a demodulator adapted to demodulate the received signal samples to generate the control codes.

14. The modem of claim 13, wherein the physical layer hardware unit includes control logic adapted to receive the control codes and configure the downconverter based on the control codes.

15. The modem of claim 14, wherein the control codes include at least one of a power level assignment, a frequency assignment, and a time slot assignment.

16. The modem of claim 13, wherein the physical layer hardware unit includes:
an upconverter adapted to receive upstream data and generate an upstream digital
signal, wherein the analog front end unit is further adapted to receive the
upstream digital signal and generate the upstream data signal; and
5 control logic adapted to receive the control codes and configure the upconverter based
on the transmission assignments defined by the control codes.

17. A method for configuring a transceiver, comprising:
receiving user data over a first communications channel;
receiving control codes over a second communications channel; and
10 transmitting an upstream signal over the first communications channel based on
transmission assignments defined by the control codes.

18. The method of claim 17, wherein transmitting the upstream signal comprises
15 transmitting the upstream signal based on at least one of a power level assignment, a
frequency assignment, and a time slot assignment.

19. The method of claim 17, further comprising:
sampling a received signal to generate received signal samples;
20 downconverting the received signal samples based on receive assignments defined by
the control codes to generate a carrierless waveform including the user data;
and
demodulating the received signal samples to generate the control codes.

20. A modem, comprising:

means for receiving user data over a first communications channel;

means for receiving control codes over a second communications channel; and

means for transmitting an upstream signal over the first communications channel
based on transmission assignments defined by the control codes.